

WHAT IS CLAIMED:

1. A lamp comprising:
an arc tube containing a light emitting plasma; and
a filter for absorbing or reflecting at least a portion of the light emitted from said plasma in the visible spectrum, said filter comprising a vitreous material containing a dopant.
2. The lamp of Claim 1 wherein said dopant comprises neodymium oxide.
3. The lamp of Claim 2 wherein said filter absorbs or reflects light in a narrow wavelength band in the visible spectrum.
4. The lamp of Claim 3 wherein the narrow wavelength band is substantially centered at 580 nm.
5. The lamp of Claim 2 wherein said dopant comprises cerium oxide.
6. The lamp of Claim 1 wherein said filter forms a protective shroud substantially surrounding said arc tube.
7. The lamp of Claim 1 wherein said filter forms an outer lamp jacket substantially surrounding said arc tube.
8. The lamp of Claim 1 wherein said filter forms the arc tube.
9. The lamp of Claim 1 wherein said filter forms a reflector.
10. The lamp of Claim 1 wherein said light emitting plasma contains sodium and scandium and said dopant contains neodymium oxide.

11. The lamp of Claim 10 wherein the color rendering index of the light transmitted by the filter is greater than about 65.
12. The lamp of Claim 1 wherein the color rendering index of the light transmitted by the filter is greater than the color rendering index of the light emitted from the plasma.
13. A high intensity discharge lamp having a vaporizable fill material comprising halides of sodium and scandium and a filtering material comprising a vitreous material containing neodymium oxide.
14. The lamp of Claim 13 wherein the operating characteristics of said lamp include a lumens per watt greater than about 70, a color rendering index greater than about 65, and a correlated color temperature between about 3000° K and about 6000° K.
15. The lamp of Claim 14 wherein the operating characteristics of said lamp include a lumens per watt greater than about 85, a color rendering index greater than about 80, and a correlated color temperature between about 3000° K and about 6000° K.
16. The lamp of Claim 13 comprising an arc tube formed from said filtering material.
17. The lamp of Claim 13 comprising an outer lamp envelope formed from said filtering material.
18. The lamp of Claim 13 comprising a protective shroud formed from said filtering material.

19. The lamp of Claim 13 wherein the filtering material forms a filter which absorbs or reflects at least seventy percent of the light generated by the lamp within a narrow wavelength band in the visible spectrum and transmits at least seventy percent of the light generated by the lamp within the visible spectrum and outside of said narrow band.

20. A lamp comprising:
an arc tube forming a chamber;
a vaporizable fill material comprising one or more halides of sodium and scandium contained within said chamber, said fill material forming a light emitting plasma during operation of the lamp; and

a notch filter formed from a vitreous material containing neodymium oxide for filtering light emitted from the plasma so that the color rendering index of the light transmitted by the filter is greater than the color rendering index of the light emitted from the plasma.

21. In a lamp having a light emitting plasma containing halides of sodium and scandium, a method of increasing the color rendering index of the light provided by the lamp comprising the step of filtering a substantial portion of the light emitted from the plasma with a filter formed from a vitreous material containing neodymium oxide.

22. The method of Claim 21 comprising the step of forming the arc tube from the vitreous material containing neodymium oxide.

23. The method of Claim 21 comprising the step of forming a protective shroud

from the vitreous material containing neodymium oxide.

24. The method of Claim 21 comprising the step of forming the outer lamp envelope from the vitreous material containing neodymium oxide.

25. A method of making a high intensity discharge lamp having a vaporizable fill material of one or more metal halides forming a light emitting plasma during operation of the lamp, said method comprising the steps of:

selecting a fill material comprising halides of sodium and scandium; and

filtering the light emitted from the plasma with a vitreous material containing neodymium oxide so that the operating characteristics of said lamp include a lumens per watt greater than about 70, a color rendering index greater than about 65, and a correlated color temperature between about 3000° K and about 6000° K.

26. The method of Claim 25 wherein the fill material further comprises a halide of thorium.

27. The method of Claim 25 wherein the operating characteristics of said lamp include a lumens per watt greater than about 85, a color rendering index greater than about 80.

28. A method of raising the CRI of a lamp having an arc tube containing a light emitting plasma wherein the plasma comprises halides of sodium and scandium, said method comprising the step of filtering light emitted from the plasma with a filter formed from a vitreous material containing neodymium oxide so that no more than thirty percent

of the light within a narrow wavelength band in the visible spectrum is transmitted and more than seventy percent of the light within the visible spectrum and outside of the narrow band is transmitted.